

# The promise of the neurosciences

A M Daniels

West Midlands  
Poisons Unit, City  
Hospital,  
Birmingham  
B18 7QH  
A M Daniels,  
consultant psychiatrist

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The dream of a conflict-free and completely harmonious existence is an old one, and from time to time schemes, which usually end in abuse or disaster, are proposed to bring it about.

The latest shortcut to human perfection is through the neurosciences. The advances in these sciences have beyond doubt been dramatic and unprecedented, and in popular expositions are said to promise vast benefits for humankind. The technological wonders of functional magnetic resonance images have disarmed scepticism, let alone criticism. Hitherto intractable problems will be dissolved by the application of the right combination of sophisticated diagnosis and treatment, pharmacological and otherwise.

We now have drugs that are better than any available before. Do you want a new and fuller personality? Fluoxetine will do the job for you. It is capable not only of restoring your depressed mood to normal but also of transforming your fundamental character for the better.<sup>1</sup> This is because so many undesirable behaviours—from aggression to phobic avoidance, from pathological gambling to compulsive hand washing—are associated with poor cerebral serotonin metabolism, which fluoxetine corrects. In the not too distant future, it is claimed, psychopharmacology will be so far advanced that you will be able to design your own personality using a palette of drugs. Need to be a little more self confident? Take an extra dose of x. Need to be less argumentative? Take an extra dose of y.

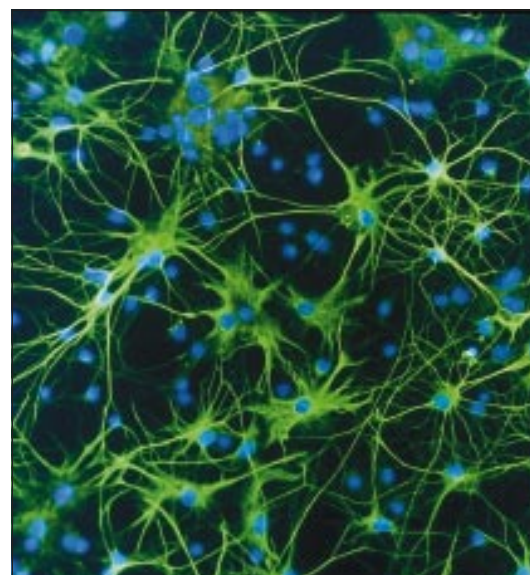
Neuroimaging techniques are just as promising. They show, among many other things, that criminal behaviour is the consequence of defective cerebral function. This insight has obvious consequences.

## End of criminal behaviour?

If self determination lies in a specific bit of tissue, it follows that those who seem not to have it may simply be unlucky—victims of a sluggish brain module.<sup>2</sup> All we need now is some way of stimulating that “specific bit of tissue,” that “sluggish brain module,” and antisocial or psychopathic behaviour will cease. Old women will be able once more to leave their homes at night, knowing that they are quite safe from the victims of sluggish brain modules.

The promise of the neurosciences threatens to make criminal law redundant. A recent book relaying the latest findings about the link between brain disease and crime to the general public asks: “Why should genuine sufferers from a disease, under which they lose control of their actions ... and who therefore lack the necessary *mens rea*, or guilty intent, be stained with the guilt of a criminal record?”<sup>3</sup>

Since almost every conceivable criminal act (child abuse, rape, burglary, and murder) is said to be caused by now proved neurochemical imbalance, there seems to be little left for the law to do—though there is much prescribing for doctors to do.



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Unbalanced?

## Inhumanity of reductionism

Those who oversell the neurosciences in this fashion tend to assume that they are being more humane than those who find these speculations and conjectures about the causes of human behaviour almost laughably inadequate. But, either in logic or in history, they are not more humane. If badly behaved people really cannot control themselves but are hapless victims of a neurologically determined poverty of impulse control, it makes sense to detain them in preventive detention as soon as they manifest this poverty (or even before), until such time as a genuine cure comes along because so far, at least, the supposed aetiological advances have been quite unmatched by therapeutic advances.

Moreover, history suggests that premature but confident and crude speculations about the physical aetiology of antisocial behaviour might lead not to humane treatment but to bungling and cruel treatment. The theory of hereditary degeneration, once a popular and almost universally accepted scientific orthodoxy, led to the compulsory sterilisation of scores of thousands of people, including those in Scandinavia after the end of the second world war.<sup>4</sup> Only in retrospect did the theory of hereditary degeneration seem obviously and absurdly naive.

The attempt to reduce the vast complexity of human life to a few comparatively simple mechanisms has an undistinguished history, and it wasn't so very long ago that the simplistic theories of behaviourism held sway. The fact is that most human failings and dissatisfactions remain beyond the reach of neuroscience and are likely to remain so. It is better to admit it than to raise false hopes and expectations.

1 Kramer P. *Listening to Prozac*. London: Fourth Estate, 1994.

2 Carter R. *Mapping the mind*. London: University of California Press, 1998.

3 Moir A, Jessel D. *A mind to crime*. London: Michael Joseph, 1995.

4 Broberg G, Roll-Hansen N. *Eugenics and the welfare state*. Ann Arbor: Michigan State University Press, 1996.

# Medical omniscience

W G Pickering

The incalculable number of medical problems and questions to which the medical profession has no certain answer is balanced by the incalculable number of times that its members none the less provide one. Many patients, not unnaturally, want definitive answers on diagnosis, prognosis, and side effects. When doctors are uncertain or do not know, they think that the patient should believe otherwise. An answer, any answer, it is felt, assuages the patient's fear and anxiety, as well as confirming a doctor's omniscience. Abating a patient's anxiety indubitably promotes their health, but what if the answers given are wrong?

Doctors can be comparatively certain about some matters—for example, uncomplicated appendicectomy or antibiotics for impetigo. They can give an educated guess about some others—for example, Bell's palsy, treated asthma—and have little idea about others—for example, the outcome of some major operations, the value of antidepressants, the side effects of many drugs. That they sometimes dissemble with their confident answers is an involuntary habit that can be medically dangerous, not to say dishonest.

## The dangers of a premature diagnosis

The diagnosis is often unknown in the early stages of many illnesses. There are grave risks in authoritatively suggesting a diagnosis at this stage. Consider a child with the common medley of symptoms of abdominal pain, fever, and vomiting, which can be the start of a score or more of childhood diseases, some benign, some, if missed, disastrous. The general practitioner tells the anxious mother: "I think it is mesenteric adenitis [benign and self limiting]. Give fluids and paracetamol and your child should soon be better." Sensible of other possibilities, the doctor continues: "Call the surgery again if things do not settle." The mother, who privately thinks that the problem might have been appendicitis, has had her anxiety moderated and, not unnaturally, takes her eye off the ball. Her threshold of suspicion is raised: doctor's diagnosis is equivalent to doctor's understanding. New and changing symptoms in her child are attributed to the doctor's diagnosis. The child does not get better, and the mother calls the surgery again three days later. The child is admitted with a ruptured appendix and an abdomen full of pus.

The provision of a named diagnosis changed the medical course by altering the mother's perception and subduing her natural instinct. (It also made it less likely that the doctor would be called again in the near future.)

Consider a 59 year old man with a history of peptic ulcer who reports that he has heartburn and difficulty in swallowing. The doctor opines that it is the old problem, although the symptoms are different. In truth, the doctor is uncertain but provides a satisfying end to the consultation (for patient and doctor) by saying, "It is the ulcer. Take these pills, but come back and see me if things don't settle." The heartburn improves, but the dysphagia does not. Doctor has said it is the ulcer, so the patient's anxiety is ameliorated. Patients often have

a touching faith (and trust) in doctors' edicts, which sustains them throughout mounting medical problems. Twenty weeks later the patient returns to the doctor and an oesophageal carcinoma is diagnosed.<sup>1</sup>

The provision of a diagnosis again changed things, and the beneficiary was not the patient. Notice that these sorts of incidents often pertain to potentially treatable disease.

## The safety of uncertainty

Being uncertain is part of normal medical practice. However, doctors rarely write, "Don't know" in the records. It is as though the doctor needs to come up with a diagnosis so as not to seem impotent or deficient to the patient (and colleagues). Yet it is safer to candidly write, "Diagnosis: don't know" and then append a differential diagnosis. This method has the important advantage of keeping the patient and doctor alert, so deterring complacency. Also, any new doctor reading "don't know" in a record has his or her attention immediately alerted and is less likely to follow the wrong path.

Signs and symptoms, even investigations, must not be squeezed into an unpromising diagnosis. Hospital doctors and general practitioners alike know how often they are dazzled by one diagnosis, even when there is an odd feel to the case. The eventual correct diagnosis makes this thinking paralysis poignantly evident.

Innumerable other questions, including operative outcomes, side effects, and prognoses, can only

Newcastle upon Tyne NE3 4AL  
W G Pickering,  
general practitioner

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Don't know

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